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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/766,868  | 01/30/2004  | Takuya Mashimo       | 248321US-2S CONT    | 4100             |
| 22850   | 7590        | 07/13/2005           | EXAMINER            |                  |
| OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.<br>1940 DUKE STREET<br>ALEXANDRIA, VA 22314 |             |                      | DONG, DALEI         |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2879                |                  |

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/766,868 | <b>Applicant(s)</b><br>MASHIMO ET AL.  |  |
|                              | <b>Examiner</b><br>Dalei Dong        | <b>Art Unit</b><br>2879  |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/30/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Specification*

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The disclosure is objected to because of the following informalities:

On page 12 of the Disclosure, line 4, "rectangular smaller hole 22" should be changed to "rectangular smaller hole 19b".

Appropriate correction is required.

*Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,996,458 to Hattori.

Regarding to claim 1, Hattori discloses in Figures 1-4 and 25, a color cathode ray tube comprising: a panel (2) having a phosphor screen (3) on an inner surface thereof; an electron gun (12) which emits electron beams (6) toward the phosphor screen (3); and a substantially rectangular shadow mask (7) located opposite the phosphor screen (3) inside the panel (2) and having a major axis and a minor axis extending at right angles to each other and to a tube axis, the shadow mask (7) including a main mask (21) opposed substantially to the whole surface of the phosphor screen (3) and having a substantially rectangular effective portion formed with a number of electron beam passage apertures (13a) and a belt-shaped auxiliary mask (22) fixed to a region containing the minor axis of the effective portion of the main mask (21), having a number of electron beam passage apertures (13b) corresponding individually to the electron beam passage apertures (13a) of the main mask (21), and elongated along the minor axis, each of the electron beam apertures (13b) of the auxiliary mask (22) being a communicating hole formed of a substantially rectangular smaller hole opening in that surface of the auxiliary mask which

is in contact with the main mask (21) and a substantially rectangular larger hole opening in the opposite surface of the auxiliary mask (22), and the smaller and larger holes of each electron beam passage aperture (13b) of the auxiliary mask (22) individually having central axes extending coaxially with each other and substantially at right angles to the surface of the auxiliary mask (22) in the direction of the major axis.

Regarding to claim 2, Hattori discloses in Figures 1-4 and 25, the electron beam passage apertures (13) of the main mask (21) and the auxiliary mask (22) are arranged at pitches of about 0.4 mm to 0.6 mm in the direction of the major axis (see column 12, line 67 to column 13, line 20).

Regarding to claim 3, Hattori discloses in Figures 1-4 and 25, the region of the auxiliary mask (22) which is situated between the electron beam passage apertures (13b) adjoining one another in the direction of the major axis is welded (W or 32) to the main mask (21).

Regarding to claim 4, Hattori discloses in Figures 1-4 and 25, the region of the auxiliary mask (22) which is situated between the electron beam passage apertures (13b) adjoining one another in the direction of the major axis is welded (W or 32) to the main mask (21).

*Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,996,458 to Hattori.

Regarding to claim 5, a color cathode ray tube comprising: a panel (2) having a phosphor screen (3) on an inner surface thereof; an electron gun (12) which emits electron beams (6) toward the phosphor screen (3); and a substantially rectangular shadow mask (7) located opposite the phosphor screen (3) inside the panel (2) and having a major axis and a minor axis extending at right angles to each other and to a tube axis, the shadow mask (7) including a main mask (21) opposed substantially to the whole surface of the phosphor screen (3) and having a substantially rectangular effective portion formed with a number of electron beam passage apertures (13a) and a belt-shaped auxiliary mask (22) fixed to a region containing the minor axis of the effective portion of the main mask (21), having a number of electron beam passage apertures (13b) corresponding individually to the electron beam passage apertures (13a) of the main mask (21), and elongated along the minor axis, each of the electron beam apertures (13b) of the auxiliary mask (22) being a communicating hole formed of a substantially rectangular smaller hole opening in that surface of the auxiliary mask which is in contact

with the main mask (21) and a substantially rectangular larger hole opening in the opposite surface of the auxiliary mask (22), the electron beam passage apertures of the auxiliary mask having relationships:  $D_a (OW1 + OW2) / D_b (OW3 + OW4) = 0.64$  and  $D_a < D_b$ , where  $D_a$  and  $D_b$  are the diameter of the smaller hole in the direction of the major axis and the diameter of the larger hole in the direction of the major axis, respectively, and the smaller and larger holes of each electron beam passage aperture (13b) of the auxiliary mask (22) individually having central axes extending coaxially with each other and substantially at right angles to the surface of the auxiliary mask (22) in the direction of the major axis.

However, Hattori does not specifically disclose the relationships of  $D_a / D_b$  is greater than or equal to 0.7.

Hattori discloses the relationship of  $D_a (OW1 + OW2) / D_b (OW3 + OW4) = 0.64$  (see column 13, lines 20-43) for the purpose of eliminating any possible variation in the surface area for the passage of the electron beams.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the electron beam passage apertures of the auxiliary mask of Hattori having the relationship of  $D_a / D_b$  is greater than or equal to 0.7 in order to eliminate any possible variation in the surface area for the passage of the electron beams. Furthermore, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Regarding to claim 6, Hattori discloses in Figures 1-4 and 25, the electron beam passage apertures (13) of the main mask (21) and the auxiliary mask (22) are arranged at pitches of about 0.4 mm to 0.6 mm in the direction of the major axis (see column 12, line 67 to column 13, line 20).

Regarding to claim 7, Hattori discloses in Figures 1-4 and 25, the region of the auxiliary mask (22) which is situated between the electron beam passage apertures (13b) adjoining one another in the direction of the major axis is welded (W or 32) to the main mask (21).

Regarding to claim 8, Hattori discloses in Figures 1-4 and 25, the region of the auxiliary mask (22) which is situated between the electron beam passage apertures (13b) adjoining one another in the direction of the major axis is welded (W or 32) to the main mask (21).

### *Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following prior art are cited to further show the state of the art of composition of a color cathode ray tube.

U.S. Patent No. 5,079,477 to Yamamoto.



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U.S. Patent No. 5,180,322 to Yamamoto.

U.S. Patent No. 5,635,320 to Ohtake.

U.S. Patent No. 5,686,784 to Thoms.

U.S. Patent No. 6,577,047 to Ohmae.

U.S. Patent No. 6,803,713 to Takahashi.

U.S. Patent No. 6,894,444 to Nakayama.

U.S. Patent Application No. 2004/0256970 to Takahashi.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalei Dong whose telephone number is (571)272-2370. The examiner can normally be reached on 8 A.M. to 5 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on (571)272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



D.D.

July 5, 2005



Joseph Williams  
Primary Examiner  
Art Unit 2879